

WHAT IS CLAIMED IS:

1. A system for communicating information between a power tool and an independent subsystem using a power cord of the tool as a signal conducting medium, the system comprising:

an independent interface subsystem adapted to be coupled to said power cord for providing an input signal to said power tool, via said power cord, that a communications mode is to be initiated between said power tool and said interface subsystem;

a controller disposed with said tool operable to recognize said input signal and to enter a communications mode of operation;

an electronic module disposed within said tool for storing operational information relating to said power tool, said electronic module being in communication with said controller;

wherein said controller obtains said operational information from said electronic module and causes periodic pulses, representative of said operational information, to be transmitted over said power cord in synchronization with said input signal; and

wherein said interface system decodes said periodic pulses to obtain said operational information.

2. The system of claim 1, wherein:

said periodic pulses comprise current pulses; and

wherein said independent interface subsystem comprises a current reading subsystem for reading said periodic pulses and demodulating said periodic pulses.

3. The system of claim 1, wherein said interface subsystem comprises a computing device.

4. The system of claim 1, wherein said input signal comprises an AC input signal having a frequency of approximately 300 Hz.

5. The system of claim 1, wherein said periodic pulses comprise a DC input signal

6. The system of claim 1, wherein said periodic pulses are capacitively coupled onto said AC input signal.

7. A system for communicating information between a power tool having a power cord, an internal motor, a switch in communication with said power cord for switching on and off said motor, and a storage module for storing operational information relating to said tool, the system comprising:

an independent interface subsystem adapted to be coupled to said power cord for providing an input signal to said power tool, via said power cord, that a communications mode is to be initiated between said power tool and said interface subsystem, said input signal having a frequency greater than 60 Hz and being of insufficient magnitude to cause rotation of said motor;

a controller disposed with said tool and operatively coupled with said switch, said controller operating to recognize said input signal and to enter a communications mode of operation, said controller being in communication with said storage module;

wherein said controller obtains said operational information from said electronic module and causes periodic pulses, representative of said operational information, to be transmitted over said power cord in synchronization with said input signal back to said interface subsystem; and

wherein said interface system decodes said periodic pulses to obtain said operational information.

8. The system of claim 8, wherein said input signal comprises an AC input signal having a frequency of at least about 300 Hz.

9. The system of claim 8, wherein said periodic pulses comprise pulses that are synchronized in frequency with said AC input signal.

10. The system of claim 9, wherein said periodic pulses are synchronized with positive going portions of said AC input signal.

11. The system of claim 7, wherein said periodic pulses comprise DC pulses.

12. The system of claim 7, wherein said periodic pulses are capacitively coupled onto said input signal.

13. A system for communicating information between a power tool having a power cord, an internal motor, a switch in communication with said power cord for switching on and off said motor, and a storage module for storing operational information relating to said tool, the system comprising:

an independent interface subsystem adapted to be coupled to said power cord for facilitating bi-directional communications with said power tool, via said power cord;

said independent interface subsystem operating to initiate a communications mode between said power tool and said interface subsystem by applying an input signal having a frequency greater than 60 Hz and being of insufficient magnitude to cause rotation of said motor; and

a controller disposed within a housing of said tool for recognizing said input signal and transmitting signal pulses, via said switch, corresponding to said stored operational information over said power cord back to said interface subsystem for decoding by said interface subsystem.

14. The system of claim 13, wherein said signal pulses are transmitted in synchronization with said input signal.

15. The system of claim 13, wherein said signal pulses are capacitively coupled onto said input signal.

16. The system of claim 13, wherein said signal pulses are DC pulses transmitted in synchronization with said input signal.

17. The system of claim 13, wherein said signal pulses are transmitted during predetermined portions of said input signal.

18. A method for bidirectionally communicating information to and from a power tool having an internally disposed module and controller, the method comprising:

- a) applying an input signal from a subsystem independent of said power tool through a power cord of said tool, said input signal informing said controller to enter a communications mode of operation;
- b) causing said input signal to have a frequency higher than 60 Hz and a power that is insufficient to cause normal operation of said tool;
- c) using said controller to receive said input signal and to initiate downloading of stored information from said module over said power cord via signal pulses generated in synchronization with said input signal; and
- d) demodulating said signal pulses to obtain said stored information.

19. The method of claim 18, wherein

wherein step c) comprises causing said controller to generate pulses that are synchronized in frequency with said input signal.

20. The method of claim 19, wherein step b) comprises causing said input signal to form an AC input signal; and

step c) comprises causing said controller to generate pulses that are applied during positive portions of said input signal.

wherein said interface system decodes said periodic pulses to obtain said operational information.

21. The method of claim 18, wherein step c) comprises using the controller to control a switch disposed within said housing of said tool to generate said signal pulses.